Clean Air Act Compliance Inspection Report

United States Environmental Protection Agency
Region 10 – Seattle, WA

Partial Compliance Evaluation
Kapstone Kraft Paper Corporation

Longview, Washington

Inspection Dates: August 24-25, 2016

Zachary T. Hedgpeth 11-16-16
Report Author Signature Date

Zach Hedgpeth, PE
CAA Engineer and Inspector
EPA Region 10

Roylene K. Cunningham 11/17/2016
Peer Review Signature Date

Roylene Cunningham
CAA Compliance Officer
EPA Region 10

Table of Contents

Attachments

1. Basic Facility and Inspection Information

Facility:	Kapstone Kraft Paper Corporation Longview, WA
Physical Address:	300 Fibre Way Longview, WA 98632
AFS Number:	WA0000005301500002
NAICS:	322110 – Pulp Mills
Facility Contact:	Roberto Artiga, Environmental Services Manager Office: 360-575-5570, Cell: 360-270-3776 roberto.artiga@kapstonepaper.com
Agency Inspectors:	Zach Hedgpeth, EPA Region 10 206-553-1217, hedgpeth.zach@epa.gov Stephanie Ogle, WA Department of Ecology 360-407-6355, stog461@ecy.wa.gov Shingo Yamazaki, WA Department of Ecology 360-407-7563, syam461@ecy.wa.gov
Dates of Inspection:	August 24-25, 2016
Date of Report:	November 16, 2016

Disclaimer

This report is a summary of observations and information gathered from the facility at the time of the inspection. The information provided does not constitute a final decision on compliance with CAA regulations or applicable permits, nor is it meant to be a comprehensive summary of all activities and processes conducted at the facility.

2. Purpose of Inspection

This inspection was planned with examination of the following areas/topics in mind:

1. Messing & Durkee (M&D) digesters, including the venting configuration from the rotary valve and screw conveyor.
2. Pulp washers, including observation for visible emissions.
3. Neutral sulfite semi-chemical (NSSC) pulping process, including the Chemiwasher.
4. High volume, low concentration (HVLC) and low volume, high concentration (LVHC) gas systems, including infrared gas imaging inspection of positive pressure sections.
5. Lime kilns and associated control equipment.
6. Power Boiler 20, including monitoring issues related to boiler MACT.

3. Facility Description

The Kapstone facility in Longview, WA is a kraft pulp and paper mill with production capacity of approximately 3,200 tons per day of combined products. The facility processes approximately 60-70% virgin wood fiber in the form of chips and sawdust, and makes up the balance with recycled cardboard and box trimmings. In terms of digestion equipment, the facility has two Kamyr digesters and a neutral sulfite semi-chemical (NSSC) pulping process which process wood chips, as well as a single M&D continuous sawdust digester. The facility operates four (4) pulp washers currently; a two-stage atmospheric diffusion washer on each of the two Kamyr lines, a drum washer on the "number 6 line" serving the M&D digester, and the Chemiwasher which is part of the NSSC system. In addition, there are two deckers which operate on the two Kamyr lines.

The facility operates two recovery furnaces (RF), designated #19 and #22. The #19 RF is a direct contact unit installed around 1973, while #22 is an indirect contact unit installed in 1992. The sole power boiler currently in operation is PB20, which is fired primarily on biomass and wastewater treatment plant sludge, although the unit uses natural gas during startup and for some combustion assistance. Facility personnel reported that former power boilers #12 and #13 were decommissioned between 2012 and 2015.

There are five total lime kilns at the facility, three of which are currently operated. Lime kilns #4 and #5 are normally operating, while lime kiln #3 is generally a backup unit. Lime kilns #1 and #2 have been decommissioned according to facility personnel, but are still physically onsite. With respect to control equipment, lime kilns #3 and #4 are controlled by separate wet scrubbers, while lime kiln #5 is controlled by a dry electrostatic precipitator (ESP).

Lime kiln #5 is the primary control device for the process gasses collected by the LVHC system, while lime kilns #3 and #4 serve as backups in case #5 is not operating. Lime kiln #4 is the primary control device for the process gasses collected by the HVLC system, while PB20 serves as the backup.

4. Inspection Activities – Wednesday, August 24, 2016 – 09:30 to 16:50

4.1. Arrival and Opening Conference

After rendezvousing near the facility with representatives of the Washington Department of Ecology (Ecology), Industrial Section, we proceeded to the facility and arrived at the security gate around 09:30. At the security gate, it was explained to the facility representative that EPA was conducting an unannounced inspection under the Clean Air Act, and that the Ecology staff would also be attending. I presented my inspector credentials at this time to the security guard, who informed us that the Environmental Services Manager, Mr. Roberto Artiga, was offsite currently, but that Mr. Wayne Wooster of the environmental staff would meet us at the facility offices.

Upon arrival at the facility offices, we were met by Mr. Wooster who escorted us to a conference room. After presenting my credentials to Mr. Wooster, an opening conference was held to discuss the inspection. The following individuals attended all or part of the opening conference:

- Wayne Wooster, Senior Environmental Engineer, Kapstone
- Brian Peterson, Paper Mill Manager, Kapstone
- Roberto Artiga, Environmental Services Manager, Kapstone
- Two members of the Kapstone environmental staff who did not provide business cards
- Stephanie Ogle, Washington Department of Ecology
- Shingo Yamazaki, Washington Department of Ecology
- Zach Hedgpeth, US EPA Region 10

I began the opening conference by discussing the planned inspection topics described above with Mr. Wooster and Mr. Peterson. Logan and Robert from the facility environmental staff were also present, but did not provide business cards. Early in the discussion we learned that Mr. Artiga would be arriving shortly, so in the meantime Mr. Wooster provided an overview of the facility and processes. This information is summarized above.

At around 10:30, Mr. Artiga arrived. Logan, Robert, and Mr. Peterson did not remain for the entirety of the opening conference. I discussed photographs and infrared videos with Mr. Artiga, and it was agreed that he would take photographs using his own camera in an attempt to gather similar images. I also agreed to provide the facility with electronic copies of infrared videos of any leaks recorded during the inspection[1]. After updating Mr. Artiga regarding the earlier discussions that had taken place prior to his arrival, the group proceeded to the field at around 11:15.

4.2. M&D Digester

The first area to be examined in the field was the M&D digester building. This portion of the inspection is depicted in photos 1-8 of the photolog (see Attachment 1). I observed two M&D digesters in place at the facility, and examined the sawdust and liquor feed equipment on M&D

[1] As discussed later in this report, no significant leaks were identified, so no video files were provided.

Digester #4 which was in operation during the inspection. M&D Digester #3 was observed adjacent to M&D #4, but was not operating and has been decommissioned according to facility personnel. During this time, I observed the following regarding the various equipment associated with M&D #4:

- M&D #4 was constructed in an inclined position, similar to M&D digesters I have seen at other facilities.
- Sawdust is delivered into a horizontal screw conveyor where it is mixed with digesting liquor. Stains from liquor leakage are visible along the horizontal screw conveyor and associated ducting in the photos.
- Sawdust/liquor mixture is delivered from the horizontal screw conveyor downward into a rotary valve which receives the sawdust/liquor mixture from above and drops the mixture into the upper section of the digester below.
- Three open ducts vent the screw conveyor vertically through the roof of the building and release directly to the atmosphere.
- One duct vents the rotary valve out the side of the building, through a cyclone, and then releases directly to atmosphere.
- I observed visible condensing vapor emissions from the cyclone stack on the rotary valve vent, as well as the screw conveyor vent closest to the feed point into the rotary valve.

We departed the M&D building at around 11:45.

4.3. Neutral Sulfite Semi-Chemical (NSSC) System

We proceeded immediately to the NSSC area, which is much newer than most portions of the facility. Facility personnel explained that the NSSC is a "dry" digester, in that there is no liquid level within the digester itself. The unit processes only hardwoods, predominately alder currently. During this inspection, the "Chemiwasher" was the only area of the NSSC which was physically examined. The Chemiwasher is the sole pulp washer for the NSSC digesting system, and is shown in photos 9-15 in the photolog.

According to the operator, the Chemiwasher does not vent to atmosphere under normal operating conditions. Examination of the ducting on the unit appeared to support this claim. Ducting from the unit was observed to enter an adjacent tank and then feed back into the washer headspace. Other than the bypass/relief stack, no duct venting to atmosphere was identified. During the inspection, I observed in the control room that the Chemiwasher bypass stack valve was closed according to the instrumentation computer display. Facility personnel stated that the condensate tank associated with the Chemiwasher vents to the HVLC system, along with the NSSC digester and filtrate tank.

During the inspection an ongoing visible leak was observed from the rotating shaft at one end of the Chemiwasher. This leak is visible in photo 10.

We departed the NSSC area at around 12:20.

4.4. Kamyr Digesters

Following a break for lunch, the inspectors returned to the facility to examine the Kamyr digester systems. Before heading to the field, a discussion of the process was held in the facility offices. While in the office, Mr. Artiga sketched rough schematics of the Kamyr and M&D digester processes on paper (see photos 16-17).

The facility operates two Kamyr digester lines. The digested pulp from each Kamyr digester is sent to a 2-stage atmospheric diffusion washer, after which the washed pulp passes through a decker, which thickens the pulp mat. Facility personnel stated that for both Kamyr lines, emissions from the decker and washers are not required to be controlled and are therefore vented to atmosphere.

We proceeded from the office to the Kamyr digester line area at around 14:15. Various units within the Kamyr lines are shown in photos 18-24 in the photolog (Attachment 1). Upon arrival at the Kamyr line area, we observed a pressure relief valve releasing visible condensing vapor emissions for a few seconds at about a 5-minute frequency. Facility personnel explained that the pressure relief valve under observation was on the Kamyr #1 chip bin, that gasses from the chip bin are collected by the HVLC system, but that they did not immediately know the pressure set point at which the PRV was set to release. Mr. Artiga stated he would look into this issue and give us an update later in the inspection.

In examining the two atmospheric diffusion washers, facility personnel explained that the units were configured with the washer portion in the upper half of the structure, with the filtrate tanks being located below. The washer portions were vented to atmosphere through vents near the top of the unit, and faint visible condensing vapor emissions were observed from each duct during the inspection. Facility personnel explained that gasses from the filtrate tanks were collected by the HVLC system, but it was not immediately clear how the washers were configured to ensure that gasses from the filtrate tanks did not escape to atmosphere via the washer portion of the unit above. Clarification on this question was not obtained during the inspection.

We departed the Kamyr area around 15:30.

4.5. M&D Digester Line (aka #6 Line)

While walking through the facility, I noticed another tank venting visible condensing vapor emissions to atmosphere, and asked about its function. Mr. Artiga stated that it was a liquor tank, and that the facility does not collect emissions from liquor tanks. Further investigation revealed that the tank was the #6 Line Foam Tank. The tank is shown in photos 25 and 27.

Mr. Artiga explained that the facility refers to the M&D process line as the #6 Line. While in this area, we also observed the #6 Line Drum Washer, which is shown in photo 26. Only one drum washer is currently operational at the facility, although a second drum washer operated in the past. The washer was observed to have four stacks, and is vented to atmosphere. This is allowed under the Clean Condensate Alternative according to facility personnel.

4.6. Lime Kilns

We arrived at the lime kilns around 15:55. The kilns and associated control equipment are shown in photos 28-33. As stated above, the facility has a total of five lime kilns onsite, three of which are operational, with the remaining two decommissioned. During this portion of the inspection, only LK #4 was in operation. Facility personnel expected that LK #5 would be in operation on the following day.

In photo 28, the exhaust stack with visible emissions is the LK #4 stack. Photos 29 and 30 show the venturi throat on the LK #4 scrubber. The scrubber is a 1970's vintage adjustable throat venturi scrubber with an unusual design, as shown in photos 32 and 33 which depict the scrubber schematics.

This wet venturi scrubber is the only air pollution control equipment on LK #4. It is operated using both high pressure fresh "mill water", which is introduced into the top of the scrubber and low pressure recirculation water from the scrubber water tank, which is injected into the scrubber lower in the venturi chamber. During the inspection, the following operating parameters on the LK #4 scrubber were recorded in the control room:

(b)(4) [redacted]

Photo 31 shows a summary sheet posted in the lime kiln control room containing key operating parameter set points, permit limits, and other information. I found it notable that although the low pressure water injection is part of normal operation and occurs during emission testing, there were no applicable operating parameter limits on the low pressure recirculation water injection.

We returned to the facility offices around 16:30 and held a short discussion regarding activities for the following day. The inspectors departed the facility around 16:50.

5. Inspection Activities – Thursday, August 25, 2016 – 08:45 to 16:30

The following morning, the inspectors met in the facility offices with Mr. Artiga and Mr. Wooster. During the day, facility personnel offered clarifications and additional information regarding a variety of topics previously discussed during the inspection. This information is compiled below in Section 5.3 Miscellaneous Topics.

5.1. Power Boiler 20 (PB20)

Prior to going into the field, a discussion was held regarding PB20. The following bullet points summarize the discussion.

- The exhaust from PB20 passes through the following equipment after leaving the boiler outlet: Multiclone > Induced Draft Fan > Four Ducon wet scrubbers, arranged in two parallel sets of two scrubbers in series > Two parallel 2-field wet electrostatic

precipitators > exhaust to atmosphere through two stacks. It was noted that the two exhaust streams are combined following the scrubbers and then separated again before entering the two ESP's.

- The four Ducon scrubbers were installed around 2008, are identical, and have a somewhat unusual design. The flue gas enters the scrubbers from the top and passes downward. Mill water is sprayed into each scrubber from nozzles near the top. The exhaust gas and water then pass through the gaps in between a bed of horizontal cylindrical rods. The exhaust gas exits near the bottom of each scrubber and passes through a mist eliminator. The scrubbers are not adjustable, other than possibly the water injection flow rate.
- Mr. Artiga informed us that the Ducon scrubbers were installed because the previously existing scrubbers were not providing a fully saturated exhaust stream, which was negatively impacting the performance of the downstream wet ESPs.
- The Ducon scrubbers are equipped with a caustic addition system, but this is only used when necessary based on data from the sulfur dioxide continuous emission monitoring system (CEMS). In practice, this usually is related to burning the non-condensable gasses from the HVLC system.
- Discussions occurred regarding Kapstone's recent alternative monitoring request under 40 CFR 63, subpart DDDDD (aka boiler MACT). These discussions are summarized as follows, and have been communicated to the appropriate Region 10 Office of Air and Waste staff:
    - According to Mr. Artiga, the facility submitted the alternative monitoring request for the following reasons: 1) Kapstone wanted to establish the minimum scrubber pressure drop parametric monitoring limit based on historical testing data showing compliance with the boiler MACT limits at lower steaming loads, 2) Kapstone did not want to include pressure drop values which are recorded when firing solely natural gas in their averaging calculations used to determine compliance with the parametric monitoring limits, and 3) Kapstone proposed certain exemptions from parametric monitoring requirements based on engineering testing data showing compliance with boiler MACT emission limits upstream of certain control devices.
    - According to Mr. Artiga, the facility's plan going forward with respect to boiler MACT is the following: 1) The facility has conducted compliance level testing of the boiler emissions at various steaming rates, 2) Kapstone is proposing a single pressure drop minimum based on the lowest steaming rate test showing compliance with boiler MACT limits, and 3) Kapstone is proposing a maximum steaming rate limit based on the highest steaming rate test showing compliance with boiler MACT limits.

5.2. FLIR Inspection of HVLC and LVHC Positive Pressure Sections

The group left the office at around 10:45 and proceeded to the field to conduct the FLIR inspection of the positive pressure sections of the HVLC and LVHC gas collection systems. The specific camera used during this inspection was a FLIR GF320 infrared gas imaging camera (S/N 44401715). Use of the camera during this inspection followed U.S. EPA Region 10 Office of

Environmental Assessment Standard Operating Procedure OEAFIELDSOP-111 entitled "Optical Gas Imaging with a FLIR GF320 Infrared Camera", which is included as Attachment 3.

The purpose of this portion of the inspection was to visually observe the sections of piping within the LVHC and HVLC gas collection systems at the facility which are under positive pressure in order to survey for leaks of organic gasses. During this portion of the inspection, gasses from the LVHC system were being routed to Lime Kiln #5 for control, while the HVLC gasses were being routed to PB20. Both systems use steam ejectors to provide the motive force for the gas collection system.

The visual inspection began with the LVHC system and traced the piping from the steam ejectors to the Lime Kiln #5 injection point to the extent possible. Next, I inspected the HVLC system piping from the steam ejectors to the injection point into PB20. The distance between these two points in both systems at the facility is several hundred feet, and includes long runs of piping that are elevated far above ground level. Because of this, close examination of the entire positive pressure section was not possible. No significant leaks were identified in either system.

Following the FLIR inspection, we departed the facility for lunch at around 13:00.

5.3. Miscellaneous Topics

After returning to the facility, discussions occurred regarding several miscellaneous topics, summarized below. At around 15:25, we visited the lime kiln control room to discuss controls on Lime Kiln #3 and pressure measurement in the LVHC and HVLC systems.

- Chemiwasher – Upon further discussion, facility personnel confirmed that the Chemiwasher gasses are recirculated, and only released if the pressure relief valve on the bypass stack blows. A liquid stream is routed from the Chemiwasher to the filtrate tank, whose emissions are controlled by the HVLC system.
- Kamyr #1 Chip Bin PRV – Mr. Artiga informed the inspectors that the PRV on Kamyr Chip Bin #1 was releasing every few minutes because a device known as an "air blaster" inside the chip bin was being activated every few minutes in an attempt to clear wood chip debris inside the bin. Activation of the air blaster was increasing the pressure inside the chip bin above the release pressure of the PRV. Mr. Artiga stated that operations staff had made adjustments to prevent this from continuing to occur.
- HVLC/LVHC Pressure Measurement – Facility operators clarified that both the HVLC and LVHC systems are equipped with pressure measurement devices at the steam ejector inlets, which shows the maximum negative pressure achieved in the system. Also, each process vessel connected to either gas collection system is equipped with pressure measurement devices in the headspace, giving an indication of whether the gas collection systems are pulling a vacuum as intended.
- Lime Kiln #3 Scrubber – Facility personnel explained that the scrubber controlling Lime Kiln #3 is a traditional venturi scrubber with an adjustable throat. Fresh mill water as well as recirculated water is injected into the scrubber above the venturi. The facility permit includes operating parameter limits on both water injection rates as well as

pressure drop. The facility adjusts the venturi throat as needed in order to achieve the target differential pressure.

- Requested Records – A list of requested records was prepared during the inspection and reviewed with Mr. Artiga. The handwritten list is included as Attachment 4. During the inspection, Mr. Artiga agreed to propose a deadline for submittal of these records by close of business, Monday August 29, 2016. The date proposed was September 24, 2016, and the records were submitted on that date via email. These records, along with the cover letter, have been included as Attachment 5.

5.4. Closing Conference

Following the discussion in the lime kiln control room, a closing conference was held to discuss the inspection in general, the action items for follow-up work, and EPA's potential compliance concerns identified during the inspection. The following staff attended the closing conference, which I led:

- Roberto Artiga, Environmental Services Manager, Kapstone
- Wayne Wooster, Sr. Environmental Engineer, Kapstone
- Patrick Ortiz, Director - Engineering, Environmental, Safety, Kapstone
- Thomas Wood, Stoel Rives, representing Kapstone (via phone)
- Stephanie Ogle, Industrial Section, WA Department of Ecology
- Zach Hedgpeth, Inspector, EPA Region 10
- Julie Vergeront, Attorney, EPA Region 10 (via phone)

I began the closing conference by explaining that the potential compliance concerns noted by EPA during this conference do not necessarily constitute violations. A brief description of the Region 10 compliance and enforcement process was provided, informing facility staff that the actual compliance determination is made by staff of the Office of Compliance and Enforcement at a later date.

Following these introductory remarks, the group reviewed the list of follow-up inspection records to be provided by Mr. Artiga at a later date. Next I presented the following list of potential compliance issues identified by the EPA during the inspection.

1. As described in Section 4.2, there are open vents from the rotary valve and screw conveyor associated with the M&D digester in operation at the facility.
2. The pressure relief valve on Kamyr Line #1 chip bin was venting during the inspection.
3. A leak was identified from the Chemiwasher.
4. The #6 Foam Tank on the M&D line was venting to atmosphere.

I departed the facility at approximately 16:30.